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15-15

-850 flux of vorticity, strength of a vortex

The flux of the vorticity vector $\text{curl } \vec{v}$ at a given instant through a considered surface

$$\Gamma = \int_A \text{curl } \vec{v} \cdot d\vec{A}$$

De: Wirbelfluß, Wirbelstärke Fr: flux de tourbillon, intensité de tourbillon Pl: strumień wirowości, natężenie strumienia wirowości Ru: вихревая струя

-655 continuity condition of rotational motion

In a steady rotational motion the divergence of the vortex lines (-615) in the whole of the fluid region is zero

$$\text{div} (\text{curl } \vec{v}) = 0$$

De: Kontinuitätsbedingung der Wirbelbewegung Fr: condition de continuité de mouvement rotationnel Pl: warunek ciągłości ruchu wirowego Ru: условие непрерывности вихревого движения

-660 Helmholtz vorticity theorem

The value of the strength of a vortex filament (-620) is the same at any of its cross-sections.

De: Helmholtz'scher Wirbelsatz Fr: théorème de Helmholtz sur l'invariabilité de l'intensité du tourbillon Pl: twierdzenie Helmholtza o niezmienności natężenia wiłki wirowego Ru: теорема Гельмгольца

-665 vortex, whirl

The limit to which an elementary vortex filament (-620) tends, as its cross-sectional dimensions tend to zero, while the strength of the filament maintains a constant finite value.

De: Wirbel Fr: tourbillon Pl: wir Ru: вихрь

-670 vortex strength

The value of the clockwise circulation around any closed curve which encircles the vortex.

De: Wirbelstärke, Wirbelmoment Fr: intensité du tourbillon Pl: natężenie wiru Ru: интенсивность вихря

15-15

-675 isolated vortex

A vortex surrounded by an irrotational velocity field (-615).

De: isolierter Wirbel Fr: tourbillon isolé Pl: wir odosobniony, wir izolowany Ru: изолированный вихрь

-680 rectilinear vortex

A vortex of straight axis.

De: geradliniger Wirbel Fr: tourbillon rectiligne Pl: wir prostoliniowy Ru: прямолинейный вихрь

-685 circular vortex, potential vortex

A plane flow (-670) consisting of a rectilinear (-680) isolated (-675) vortex of an axis perpendicular to the flow plane (-675), in which the flow lines (-235) are concentric circles.

The complex potential (-685) of this vortex can be expressed by a formula

$$w(z) = \frac{\Gamma}{2\pi i} \ln z$$

where Γ denotes the circulation, and z — the complex variable.

De: kreisförmiger Wirbel, Potentialwirbel Fr: tourbillon circulaire, tourbillon potentiel Pl: wir płaski, kołowy, wir potencjalny Ru: круговой вихрь, потенциальный вихрь

-690 spiral vortex

A vortex whose vortex line (-615) is spiral.

De: Spiralwirbel Fr: tourbillon en spirale Pl: wir śrubowy Ru: спиральный вихрь, винтообразный вихрь

-695 ring vortex, vortex ring

An isolated vortex (-675) with toroidal core, formed by a set of circular vortex lines (-615), whose centres lie on a common axis and whose planes are perpendicular to it.

De: Ringwirbel, Wirbelring Fr: tourbillon annulaire, anneau de tourbillon Pl: wir pierścieniowy, pierścień wirowy Ru: круговой вихрь, вихревое кольцо

15-15

-700 vortex core, v

A liquid or gas central part as a rigid body

De: Wirbel Fr: noyau de tourbillon Pl: wiru Ru:

-705 rigid vortex

A notion of vortex (-70)

De: starrgide Pl: вихрь

-710 hollow

An liquid whose central part below it in part

De: Ho Pl: w вихрь,

-715 free si

A deep fluid, vortex

-700 vortex core, whirl core

A liquid or gaseous region forming the central part of a vortex and behaving as a rigid body (05-10-000).

De: Wirbelkern, Wirbelnder Kern
Fr: noyau tourbillonnaire, noyau de tourbillon
Pl: jądro wirowe, rdzeń wiru
Ru: вихревое ядро

-705 rigid vortex, solid-body vortex

A notion identified with the core of a vortex (-700).

De: starrer Wirbel
Fr: tourbillon rigide
Pl: wir sztywny
Ru: жёсткий вихрь

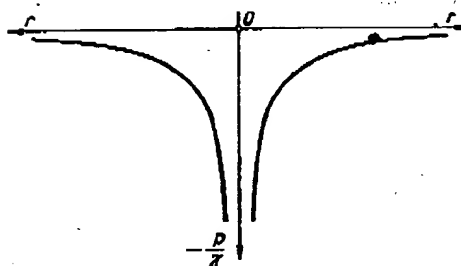
-710 hollow vortex

An isolated vortex (-675) in a liquid, whose core is filled with the vapour of this liquid, owing to a pressure drop below the vapour pressure of the liquid in part of the vortex.

De: Hohlwirbel
Fr: vortex en creux
Pl: wir kawitacyjny
Ru: полый вихрь, пустой вихрь

-715 free surface vortex

A depression in the free surface of a fluid, forming the gaseous core of the vortex (-700).



De: trichterförmiger Wirbel
Fr: vortex en entonnoir
Pl: lej wirowy
Ru: воронкообразный вихрь, водоворот

-720 vortex pair

A system of two rectilinear parallel vortices (-680) of equal strength, but with oppositely directed senses.

De: Wirbelpaar
Fr: couple des tourbillons
Pl: para wirów
Ru: пара вихрей

-725 vortex sheet

An infinitely thin layer, constituting the vortex region (-610) of a fluid, separating two irrotational regions (-815), and in the limit equal to the slip surface (-350).

De: Wirbelband, Wirbelschicht
Fr: couche de tourbillons, nappe de tourbillons
Pl: warstwa wirowa
Ru: вихревой слой

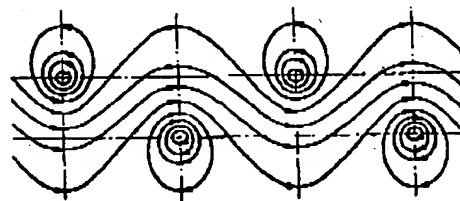
-730 (single) row of vortices

An infinite row of isolated (-675) line (-680) vortices, each of them being of the same direction and strength, and interposed at equal distance on the same plane.

De: Wirbelreihe
Fr: file tourbillonnaire
Pl: łańcuch wirów
Ru: вихревая цепочка

-735 Kármán vortex street, Kármán vortex path

The stable arrangement of two rows of vortices (-730) rotating in opposite directions.



De: Kármánsche Wirbelstraße
Fr: deux files tourbillonnaires de Bénard-Kármán, tourbillons alternés de Bénard-Kármán
Pl: układ wirów Kármána, aleja wirowa Kármána
Ru: вихревая дорожка Кармана, вихревые цепочки Кармана

-030 hydraulic transmission, hydraulic coupling, hydraulic clutch, fluid coupling

A unit consisting of a pump impeller (-055) and a turbine runner (-055), set on the ends of separate shafts and enclosed in a casing filled with liquid transmitting power from one shaft to the other.

De: hydraulisches Getriebe, Flüssigkeitsgetriebe Fr: engrenage hydraulique Pl: przekładnia hydrauliczna, sprzęgło hydrauliczne Ru: гидравлическая передача

-035 turbo-compressor

A rotodynamic machine (-055) used for the displacement and compression of gases, the working element of which is an impeller (-055) producing an increase in the moment of momentum (05-55-050) of the gas flowing through it.

De: Kreiselerverdichter, Turbokompressor Fr: turbo-compresseur Pl: sprężarka wirowa, kompresor wirnikowy Ru: центробежный компрессор, турбокомпрессор

-040 turbo-blower

A turbo-compressor (-035) used for conveying and compressing gases to pressures of 1-1 to 3-0 at.

De: Kreiselergebläse, Turbogebbläse Fr: turbo-ventilateur Pl: dmuchawa wirowa Ru: центробежная воздуходувка, центробежный вентилятор

-045 fan

A turbo-compressor (-035) used for conveying and compressing gases (usually air) to pressures of 1-0 to 1-1 at.

De: Ventilator Fr: ventilateur Pl: wentylator Ru: вентилятор

-050 wind turbine, wind motor

A rotodynamic engine in which torque is developed by a current of air flowing through the rotor disk area (-55-780), the torque depending on the conditions of flow round the blades.

De: Windmotor, Windkraftmaschine Fr: moteur éolien, moulin à vent Pl: turbina wiatrowa, turbina wietrzna, wiatrak Ru: ветряной двигатель

-055 runner (in water turbines), impeller (in pumps)

The rotor of a rotodynamic machine (-005) consisting of a hub and a series of blades shaped so that when liquid flows through the rotor passages, a change takes place in the moment of momentum (05-55-050) of the liquid passing through them.

De: Laufrad, Kreiselerad Fr: roue motrice, roue mobile Pl: wirnik Ru: лопастное колесо

-060 radial-flow runner (in water turbines), radial-flow impeller (in rotodynamic pumps)

A rotor in which the fluid flows in the radial direction, i.e. perpendicularly to the rotor axis.

De: Radial-Kreiselerad Fr: roue motrice radiale Pl: wirnik o przepływie promieniowym Ru: радиальное лопастное колесо

-065 axial-flow runner (in water turbines), axial-flow impeller (in rotodynamic pumps)

A rotor in which the fluid filaments form cylindrical surfaces concentric with the rotor axis.

De: Achsial-Kreiselerad Fr: roue motrice axiale Pl: wirnik o przepływie osiowym Ru: осевое лопастное колесо

-070 diagonal runner, mixed-flow runner (in water turbines), diagonal impeller, mixed-flow impeller (in rotodynamic pumps)

A rotor in which the fluid flows in the direction inclined to the rotor axis.

De: halbaxiales Kreiselerad Fr: roue motrice à écoulement oblique Pl: wirnik o przepływie ukośnym, wirnik o przepływie diagonalnym Ru: лопастное колесо с косым течением